PATENT COOPERATION TREATY

PCT

TRANSLATION INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference IPY-172	FOR FURTHER ACTION	See Form PCT/IPEA/416						
International application No.	International filing date (day/month/year)	Priority date (day/month/year)						
PCT/JP2004/017062	17.11.2004	17.11.2003						
International Patent Classification (IPC) or national	onal classification and IPC							
G02F1/015, G02B26/02, H04B10/16								
Applicant								
NEC CORPORATION								
		s International Preliminary Examining Authority						
under Article 35 and transmitted to th	A							
2. This REPORT consists of a total of _	sheets, includi	ing this cover sheet.						
3. This report is also accompanied by Al	NNEXES, comprising:							
a. (sent to the applicant and	to the International Bureau) a total of 6	sheets, as follows:						
1 1 1		amended and are the basis for this report and/or						
Instructions).	sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).							
I I I		onsiders contain an amendment that goes beyond						
the disclosure in the Box.	international application as filed, as indicate	ed in item 4 of Box No. I and the Supplemental						
	Down and the state of Goddington and annual							
S (sent to the the mattonal t	Bureau only) a total of (indicate type and numb	ser of electronic carrier(s))						
1,11		, containing a sequence listing and/or tables						
	related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).							
4. This report contains indications relation	ng to the following items:							
Box No. I Basis of the	report							
Box No. II Priority								
Box No. III Non-establi:	shment of opinion with regard to novelty, inve	ntive step and industrial applicability						
Box No. IV Lack of unit	y of invention							
DON THE !								
	7							
Box No. VII Certain defe	Box No. VII Certain defects in the international application							
Box No. VIII Certain obse	Box No. VIII Certain observations on the international application							
Date of submission of the demand		this vapout						
Date of Submission of the demand	Date of completion of	moreport						
Name and mailing address of the IPEA/JP	Authorized officer							
Tvame and maining address of the IPEA/JP	Authorized officer							
	Telephone No.							

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/JP2004/017062

Box	No. I	Basis of the report						
1.		n regard to the language , this report is based on the internaticated under this item.	ional application in the language in	which it was filed, unless otherwise				
			s report is based on translations from the original language into the following language, ch is the language of a translation furnished for the purposes of:					
		international search (Rule 12.3 and 23.1(b))						
		publication of the international application (Rule 12.	.4)					
		international preliminary examination (Rule 55.2 and	d/or 55.3)					
2.	recei	n regard to the elements of the international application, thi iving Office in response to an invitation under Article 14 or report):						
		the international application as originally filed/furnished						
	\boxtimes	the description:						
		pages1,2,5,6,9-18		as originally filed/furnished				
		pages*3,4,7,8	received by this Authority on	16.09.2005				
		pages*	received by this Authority on					
	\boxtimes	the claims:						
		nos. 2,3,12,13,16		as originally filed/furnished				
		nos.*	as amended (togethe	er with any statement) under Article 19				
		nos.* _1,4-11,14,15,17,18	received by this Authority on	16.09.2005				
		nos.*	received by this Authority on					
	\boxtimes	the drawings:						
		sheets fig. 1-13		as originally filed/furnished				
		sheets*						
		sheets*						
		a sequence listing and/or any related table(s) – see Supple	— mental Box Relating to Sequence L	isting.				
3.	$\overline{\Box}$	The amendments have resulted in the cancellation of:		Ü				
٥.		the description, pages						
		the claims, nos. the drawings, sheets/figs						
		any table(s) related to sequence listing (specify):		_				
4.		This report has been established as if (some of) the amer	ndments annexed to this report and	Llisted below had not been made, since				
	Ш	they have been considered to go beyond the disclosure as						
		the description, pages						
		the claims, nos.						
		the drawings, sheets/figs	the drawings, sheets/figs					
		the sequence listing (specify):						
		any table(s) related to sequence listing (specify):						
*	If ite	rm 4 applies, some or all of those sheets may be marked "su	perseded."					

International application No.
PCT/JP2004/017062

Box			ticle 35(2) with regard to novelty, inventive step or industrial applicability; poorting such statement	
1.	Statement			
	Novelty (N)	Claims	3, 5-7, 9-18	YES
		Claims	1, 2, 4, 8	_ NO
	Inventive step (IS)	Claims		YES
		Claims	1-18	NO NO
	Industrial applicability (IA)	Claims	1-18	_ YES
		Claims		_ NO

- 2. Citations and explanations (Rule 70.7)
 - Document 1: JP 57-155503 A (Matsushita Electric Industrial Co., Ltd.), 25 September 1982, page 2, upper right column, line 3 to page 3, lower left column, line 3, and fig. 2 to 6 (Family: none)
 - Document 2: JP 2000-216424 A (NEC Corp.), 04 August 2000, paragraphs 31 to 52 and fig. 1 to 6 (Family: none)
 - Document 3: JP 7-15093 A (NEC Corp.), 17 January 1995, entire text, all drawings & EP 631168 A1 & US 5499259 A
 - Document 4: JP 62-80614 A (The Furukawa Electric Co., Ltd.), 14 April 1987, page 2, upper left column, line 12 to lower left column, line 9 and fig. 1 (Family: none)
 - Document 5: JP 4-328510 A (International Business Machines Corp.), 17 November 1992, entire text, all drawings & EP 505655 A1 & US 5271075 A

Claims 1, 2, 4 and 8 lack novelty and do not involve an inventive step in the light of document 1. The configuration disclosed in document 1 (fig. 3) can be

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

said to include a sort of switching means.

Claims 3, 9 to 12 and 16 to 18 do not involve an inventive step in the light of documents 1 and 2. The photovoltaic elements disclosed in document 2 act as waveguide tubes (paragraph 44), and can be configured so as to transmit light to some extent. Such being the case, it would have been easy for a person skilled in the art to conceive of substituting the nipi-type semiconductor photovoltaic elements that are disclosed in document 2 for the semiconductor photovoltaic elements in the device disclosed in document 1.

Claims 5 and 13 do not involve an inventive step in the light of documents 1 and 3 or documents 1 to 3. It would have been easy for a person skilled in the art to conceive of using the optical elements disclosed in document 1 as the optical elements in an absorptive modulator, a refractive modulator or the like, as disclosed in document 3.

Claims 6 and 14 do not involve an inventive step in the light of documents 1 and 4 or documents 1, 2 and 4. In the light of document 4 it would have been easy for a person skilled in the art to conceive of introducing a voltage source into the device that is disclosed in document 1.

Claims 7 and 15 do not involve an inventive step in the light of documents 1 and 5 or documents 1, 2 and 5. In the light of document 5 it would have been easy for a person skilled in the art to conceive of using the device disclosed in document 1 as a planar optical circuit.